Statistical Study of False Alarms of Geomagnetic Storms

Leer, Kristoffer; Vennerstrøm, Susanne; Veronig, A.; Rodriguez, L.; Vrsnak, B.; Dumbovic, M.

Publication date:
2013

Document Version
Publisher's PDF, also known as Version of record

K. Leer, S. Vennerstrom, A. Veronig, L. Rodriguez, B. Vrsnak

Statistical study of false alarms of geomagnetic storms

Coronal Mass Ejections (CMEs) are known to cause geomagnetic storms on Earth. However, not all CMEs will trigger geomagnetic storms, even if they are heading towards the Earth. In this study, front side halo CMEs with speed larger than 500 km/s have been identified from the SOHO LASCO catalogue. A subset of these halo CMEs did not cause a geomagnetic storm the following four days and have therefore been considered as false alarms. The properties of these events are investigated and discussed here. Their statistics are compared to the geo-effective CMEs.
The ability to identify potential false alarms is considered as an important factor when forecasting geomagnetic storms. It would therefore be very helpful if there were a signature in the solar data that could indicate that a CME is a false alarm. The strength and position of associated flares have been considered as possible candidates for false alarm signature.

This work has received funding from the European Commission FP7 Project COMESEP (263252)

HVAR Observatory, Faculty of Geodesy - University of Zagreb (HVAR), Croatia

Technical University of Denmark (DTU), Denmark

University of Graz (UNIGRAZ), Austria

Royal Observatory of Belgium (ROB), Belgium